

## KATIE M. SAUND

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### RESEARCH EXPERIENCE & EDUCATION

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**PhD candidate in Microbiology & Immunology** University of Michigan, Ann Arbor, MI 2015 – Dec 2020 *expected*

- **Advisor:** Evan Snitkin, PhD
- **Thesis project:** Statistical & bioinformatic approaches to identify variants in whole genome sequencing (WGS) data associated with pathogenic phenotypes and patient outcomes during *Clostridium difficile* infection.
- **Topics:** computational biology, bacterial genomics & metagenomics, infectious disease, tool development.
- **Awards:** ASM Travel Award (2019), UM Rackham Conference Travel Grant (2019) & Professional Development Award (2019), NIH Predoctoral Genetics Training Grant (2016 – 2018), UM Maas Fellowship (2015).
- **Software:**
  - [hogwash](#). R package. Three bacterial GWAS methods.
  - [prewas](#). R package. Data preprocessing for bacterial GWAS.
- **Papers:**
  - [Saund\\*, Lapp\\*, Thiede\\*, Pirani, Snitkin](#). Microbial Genomics. 2020. \*Equal contribution.
  - [Saund, Rao, Young, Snitkin](#). Open Forum Infectious Diseases. 2020.
  - [Mau, Eckley, Bergin, Saund, Villano, Vendrov, Snitkin, Young, Yung](#). mSphere. 2019.
  - Preprint: [Saund & Snitkin](#). Hogwash: Three bacterial GWAS methods.
  - Preprint: [Bassis, Bullock, Sack, Saund, Pirani, Snitkin, Alaniz, Quint, Young, Bell](#) Vaginal microbiota
- **External talks:** ASM Microbe (2019) & Systems Biology and Antibacterial Resistance Program (2018).

**Intern in Genetics and Pharmacogenomics** at Merck in Boston, MA

Summer 2020

- **Advisor:** Marc Sze, PhD
- **Topics:** Single-cell RNA sequencing, early discovery oncology

**Research rotation** with Benjamin Segal, MD at University of Michigan

2015

- **Project:** Screened effect of potential therapeutic drug on progression of experimental autoimmune encephalomyelitis (a mouse model of multiple sclerosis).
- **Topics:** autoimmunity, T-regs, T-cells, & immunology.

**Research Assistant & Scientist 1** (Promoted 2014) Seattle Children's Research Institute, Seattle, WA 2012 – 2015

- **Advisor:** Courtney Crane, PhD (U. of Washington & Ben Towne Center for Childhood Cancer Research)
- **Project:** Characterization of the role of lactate dehydrogenase in the pediatric glioma microenvironment.
- **Topics:** cancer immunotherapy, solid tumors, immunology, cancer metabolism, NK cell & macrophage biology.
- **Paper:** Haberthur, Brennan, ... Cancer Biology & Therapy. 2016.

**California Institute of Technology** (Caltech) BS Biology, Pasadena, CA

2008 – 2012

- **Leadership:** Co-President for Class of 2012. Coordinated commencement & obtained grant for class trip.
- **Awards:** Everhart Service (2012), Teruggi Memorial (2011), Studenski Memorial (2010), & Shepard (2009).
- **Research:** SantaLucia Lab: 16s rRNA alignment algorithm improvement (Wayne State University; 2009) & Manary Lab: food & clinical interventions for pediatric malnutrition (Washington University; 2010 & 2011).

### COMPUTATIONAL AND LABORATORY SKILLS

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**Computational** R, bash, package development, high performance cluster (HPC) computing, version control (git), data visualization, markdown, dashboards (shiny), batch scheduling (PBS, SLURM), unit testing, linux/mac/PC.

**Bioinformatic tools** blast, constraints, iqtree, ksnp, mafft, pilon, prank, provean, roary, sift, snpeff, treebe, raxml.

**Laboratory** Anaerobic bacterial culture, co-immunoprecipitation of proteins, CRISPR/Cas9 genome editing, cryostat, flow cytometry, immune cell isolation, lentiviral transduction, mammalian cell culture, molecular biology, mouse handling, microbial techniques, plasmid construction, robotic pipetting system, qPCR.

### INVESTING & MENTORSHIP AT UNIVERSITY OF MICHIGAN

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**Student Advisor at Wolverine Venture Fund**

2018 – Present

- Performed due diligence on Series A/B healthcare & technology companies to inform investment decisions.

**Venture Capital Investment Competition**

2018 – 2019

- First place team at UM Ross School of Business competition & participant at Regional Competition (UT Austin).

**Undergraduate Honors Thesis Research Mentor**

2018 – Present

- Weekly supervision of thesis research for undergraduate microbiology student.